

IN THE CLAIMS:

1. (Currently Amended) A mobile micro-robot for use inside an animal body during ~~of an animal in~~ minimally invasive surgery, comprising:

- a body for incorporating components of the micro-robot;
- a mobilization means element coupled to the body for moving the body of the micro-robot within the animal body;
- a controller means for controlling remotely the mobilization means element;
- an actuator coupled to the controller and mobilization element, the actuator configured to provide movement to the mobilization element based on input from the controller;
- a manipulator arm extending from the body of the micro-robot, the manipulator arm having a free end defining a tip and being movable to assist in surgical tasks;
- a power supply adapted to power the actuator and the manipulator arm; and
- at least one device selected from a manipulator or a sensor proximate the body of the micro-robot for monitoring at least one parameter within the animal body.

2. (Cancelled)

3. (Currently Amended) The mobile micro-robot of claim [[2]] 1, wherein the body is shaped like a cylinder.

4. (Currently Amended) The mobile micro-robot of claim 1, wherein the mobilization ~~means comprises~~ element is selected from at least one member of the group consisting of wheels, tracks, legs, walking means, hopping means, rotation means, and portions of the body capable of contortion of the body or a combination thereof.

5. (Currently Amended) The mobile micro-robot of claim [[4]] 1, wherein the mobilization ~~means~~ element is one or more wheels.

6. (Original) The mobile micro-robot of claim 5, wherein the one or more wheels have treads.
7. (Currently Amended) The mobile micro-robot of claim 1, further comprising a transmitter for sending data from the micro-robot to a remote location.
8. (Currently Amended) The mobile micro-robot of claim 1, further comprising a receiver to remotely input command signals that control the micro-robot.
9. (Currently Amended) The mobile micro-robot of claim 1, further comprising a transmitter and a receiver for sending data and inputting command signals between the micro-robot and a remote location.
10. (Currently Amended) The mobile micro-robot of claim 1, wherein the actuator is selected from the group consisting of a brushless direct current motor actuator, a magnetic direct current motor actuator, an electromagnet actuator, a permanent magnet direct current motor, a shape memory alloy, a piezo-electric-based actuator, a pneumatic motor actuator ~~or~~ and a hydraulic motor actuator.
11. (Currently Amended) The mobile micro-robot of claim ~~[[10]]~~ 1, wherein the actuator is a brushless direct current motor actuator.
12. (Currently Amended) The mobile micro-robot of claim 1, wherein the ~~micro-robot is attached to and powered by an external power supply~~ is disposed external of the animal body and coupled to the body of the micro-robot by a wire.
13. (Currently Amended) The mobile micro-robot of claim 1, wherein the power supply ~~[[in]]~~ is an internal power supply disposed on the body of the micro-robot.
14. (Original) The mobile micro-robot of claim 13, wherein the internal power supply is one or more batteries.

15. (Cancelled)

16. (Currently Amended) The mobile micro-robot of claim 1, wherein the at least one ~~device is a sensor device~~ is selected from at least one member of the group consisting of a camera, an imaging device, a pH sensor, a temperature sensor, a sensor to detect gasses, a sensor to detect electrical potential, a sensor to detect heart rate, a sensor to detect respiration rate, a sensor to detect humidity, or and a sensor to detect blood.

17. (Currently Amended) The mobile micro-robot of claim 1, wherein the at least one sensor device comprises ~~a manipulator and~~ an imaging device.

18. (Original) The mobile micro-robot of claim 1, wherein the mobile micro-robot is wireless.

19. (Currently Amended) The mobile micro-robot of claim 18, wherein the actuator is a brushless direct current motor, the power supply is a battery, and the mobile micro-robot further comprises a receiver and a transmitter for sending data and inputting command signals between the micro-robot and a remote location.

20-22. (Cancelled)

23. (Currently Amended) The mobile micro-robot of claim 17 ~~[[22]]~~, wherein the ~~sensor in an imaging device~~ is movable relative to the body of the micro-robot to adjust a position of the imaging device.

24. (Currently Amended) The mobile micro-robot of claim 23, wherein the ~~positioning position~~ is pan, tilt or combinations thereof.

25. (New) The mobile micro-robot of claim 1, wherein the manipulator arm is articulated.

26. (New) A mobile micro-robot for use inside an animal body during minimally invasive surgery, comprising:

a body for incorporating components of the micro-robot;

a manipulator arm extending from the body of the micro-robot, the manipulator arm having a free end defining a tip and being movable to assist in surgical tasks; and

a mobilization assembly coupled to the body for moving the body of the micro-robot within the animal body, wherein the mobilization assembly and the manipulator arm are remotely controlled.

27. (New) A method of performing minimally invasive surgery inside an animal body, comprising:

implanting a micro-robot into the animal body, the micro-robot having a remotely controllable mobilization assembly, a remotely controllable manipulator arm and a sensor;

moving the micro-robot inside the animal body by operation of the mobilization assembly;

monitoring at least one parameter within the animal body with the sensor; and

performing a surgical task by operation of the manipulator arm.

28. (New) The method of claim 27, wherein the monitoring comprises viewing images within the animal body.